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## CHAPTER 3

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# THE FOUR DIMENSIONS OF SERVICE MANAGEMENT

## 3 The four dimensions of service management

The previous chapter outlined the concepts that are key to service management. The objective of an organization is to create value for its stakeholders, and this is achieved through the provision and consumption of services. The ways in which the various components and activities of an organization work together to create this value is described by the ITIL SVS. However, before this is explored further, the four dimensions of service management must be introduced. These dimensions are relevant to, and impact upon, all elements of the SVS.

To achieve their desired outcomes and work as effectively as possible, organizations should consider all aspects of their behaviour. In practice, however, organizations often become too focused on one area of their initiatives and neglect the others. For example, process improvements may be planned without proper consideration for the people, partners, and technology involved, or technology solutions can be implemented without due care for the processes or people they are supposed to support. There are multiple aspects to service management, and none of these are sufficient to produce the required outcomes when considered in isolation.



### Key message

To support a holistic approach to service management, ITIL defines four dimensions that collectively are critical to the effective and efficient facilitation of value for customers and other stakeholders in the form of products and services. These are:

- organizations and people
- information and technology
- partners and suppliers
- value streams and processes.

These four dimensions represent perspectives which are relevant to the whole SVS, including the entirety of the service value chain and all ITIL practices. The four dimensions are constrained or influenced by several external factors that are often beyond the control of the SVS.

The four dimensions, and the relationships between them, are represented in Figure 3.1.

Failing to address all four dimensions properly may result in services becoming undeliverable, or not meeting expectations of quality or efficiency. For example, failing to consider the value streams and processes dimension holistically can lead to wasteful work, duplication of efforts, or worse, work that conflicts with what is being done elsewhere in the organization. Equally, ignoring the partners and suppliers dimension could mean that outsourced services are misaligned with the needs of the organization. The four dimensions do not have sharp boundaries and may overlap. They will sometimes interact in unpredictable ways, depending on the level of complexity and uncertainty in which an organization operates.

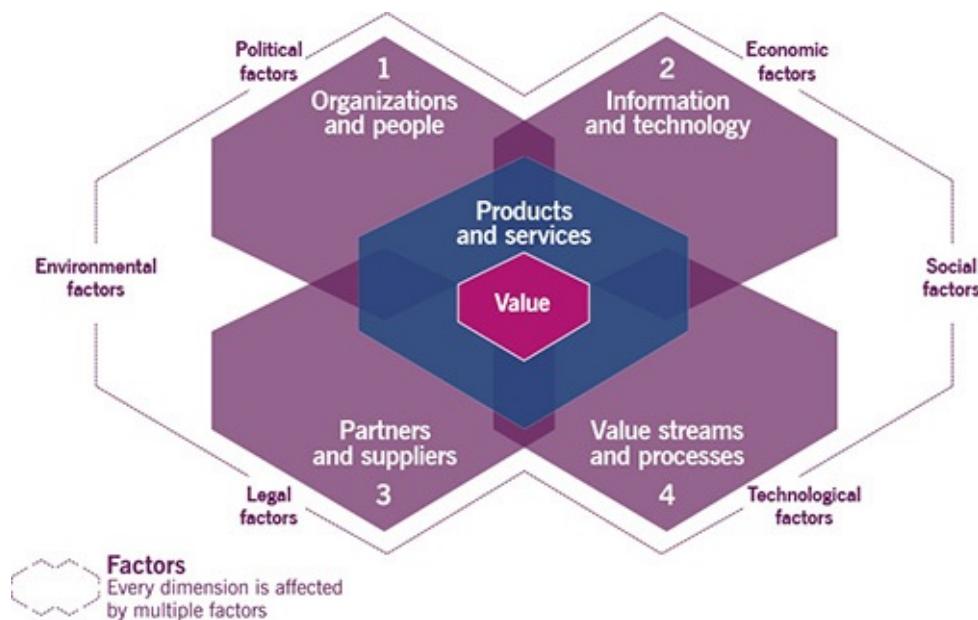


Figure 3.1 | The four dimensions of service management

It is important to note that the four dimensions of service management apply to all services being managed, as well as to the SVS in general. It is therefore essential that these perspectives should be considered for every service, and that each one should be addressed when managing and improving the SVS at all levels.

An overview of the four dimensions is provided below, and more detailed guidance on addressing the dimensions in practice can be found in other ITIL 4 publications.

### The ITIL story: The four dimensions of service management



**Henri:** As an IT team, we are responsible for the information and technology at Axle Car Hire. However, effective IT management is much more than just managing technology. We must also consider the wider organization and people involved in Axle's car-hire service, our relationships with partners and

*suppliers, and the value streams, processes, and technologies that we use.*

## 3.1 Organizations and people

The first dimension of service management is organizations and people.

The effectiveness of an organization cannot be assured by a formally established structure or system of authority alone. The organization also needs a culture that supports its objectives, and the right level of capacity and competency among its workforce. It is vital that the leaders of the organization champion and advocate values which motivate people to work in desirable ways. Ultimately, however, it is the way in which an organization carries out its work that creates shared values and attitudes, which over time are considered the organization's culture.



### Key message

The complexity of organizations is growing, and it is important to ensure that the way an organization is structured and managed, as well as its roles, responsibilities, and systems of authority and communication, is well defined and supports its overall strategy and operating model.

As an example, it is useful to promote a culture of trust and transparency in an organization that encourages its members to raise and escalate issues and facilitates corrective actions before any issues have an impact on customers. Adopting the ITIL guiding principles can be a good starting point for establishing a healthy organizational culture (see section 4.3).

People (whether customers, employees of suppliers, employees of the service provider, or any other stakeholder in the service relationship) are a key element in this dimension. Attention should be paid not only to the skills and competencies of teams or individual members, but also to management and leadership styles, and to communication and collaboration skills. As practices evolve, people also need to update their skills and competencies. It is becoming increasingly important for people to understand the interfaces between their specializations and roles and those of others in the organization, to ensure proper levels of collaboration and coordination. For example, in some areas of IT (such as software development or user support), there is a growing acknowledgement that everyone should have a broad general knowledge of the other areas of the organization, combined with a

deep specialization in certain fields.

Every person in the organization should have a clear understanding of their contribution towards creating value for the organization, its customers, and other stakeholders. Promoting a focus on value creation is an effective method of breaking down organizational silos.

The organizations and people dimension of a service covers roles and responsibilities, formal organizational structures, culture, and required staffing and competencies, all of which are related to the creation, delivery, and improvement of a service.

### The ITIL story: Axle's organization and people



*Henri: The organizations and people dimension of Axle's car-hire services includes my IT team and other teams within the organization, such as procurement, HR, and facilities.*

## 3.2 Information and technology

The second dimension of service management is information and technology. As with the other three dimensions, information and technology applies both to service management and to the services being managed.

Detailed guidance on the role of information and technology in service management can be found in other ITIL publications.



### Key message

When applied to the SVS, the information and technology dimension includes the information and knowledge necessary for the management of services, as well as the technologies required. It also incorporates the relationships between different components of the SVS, such as the inputs and outputs of activities and practices.

The technologies that support service management include, but are not limited to, workflow management systems, knowledge bases, inventory systems,

communication systems, and analytical tools. Service management increasingly benefits from developments in technology. Artificial intelligence, machine learning, and other cognitive computing solutions are used at all levels, from strategic planning and portfolio optimization to system monitoring and user support. The use of mobile platforms, cloud solutions, remote collaboration tools, automated testing, and deployment solutions has become common practice among service providers.

In the context of a specific IT service, this dimension includes the information created, managed, and used in the course of service provision and consumption, and the technologies that support and enable that service. The specific information and technologies depend on the nature of the services being provided and usually cover all levels of IT architecture, including applications, databases, communication systems, and their integrations. In many areas, IT services use the latest technology developments, such as blockchain, artificial intelligence, and cognitive computing. These services provide a business differentiation potential to early adopters, especially in highly competitive industries. Other technology solutions, such as cloud computing or mobile apps, have become common practice across many industries globally.

In relation to the information component of this dimension, organizations should consider the following questions:

- What information is managed by the services?
- What supporting information and knowledge are needed to deliver and manage the services?
- How will the information and knowledge assets be protected, managed, archived, and disposed of?

For many services, information management is the primary means of enabling customer value. For example, an HR service facilitates value creation for its customers by enabling the organization to access and maintain accurate information about its employees, their employment, and their benefits, without exposure of private information to unauthorized parties. A network management service facilitates value creation for its users by maintaining and providing accurate information about an organization's active network connections and utilization, allowing it to adjust its network bandwidth capacity. Information is generally the key output of the majority of IT services which are consumed by business customers.

Another key consideration in this dimension is how information is exchanged between different services and service components. The information architecture of the various services needs to be well understood and continually optimized, taking into account such criteria as the availability, reliability, accessibility, timeliness, accuracy, and relevance of the information provided to users and exchanged between services.

The challenges of information management, such as those presented by security

and regulatory compliance requirements, are also a focus of this dimension. For example, an organization may be subject to the European Union's General Data Protection Regulation (GDPR), which influences its information management policies and practices. Other industries or countries may have regulations that impose constraints on the collection and management of data of multinational corporations. For example, in the US the Health Insurance Portability and Accountability Act of 1996 provides data privacy and security provisions for safeguarding medical information.

Most services nowadays are based on IT, and are heavily dependent on it. When considering a technology for use in the planning, design, transition, or operation of a product or service, questions an organization may ask include:

- Is this technology compatible with the current architecture of the organization and its customers? Do the different technology products used by the organization and its stakeholders work together? How are emerging technologies (such as machine learning, artificial intelligence, and Internet of Things) likely to disrupt the service or the organization?
- Does this technology raise any regulatory or other compliance issues with the organization's policies and information security controls, or those of its customers?
- Is this a technology that will continue to be viable in the foreseeable future? Is the organization willing to accept the risk of using aging technology, or of embracing emerging or unproven technology?
- Does this technology align with the strategy of the service provider, or its service consumers?
- Does the organization have the right skills across its staff and suppliers to support and Maintain the technology?
- Does this technology have sufficient automation capabilities to ensure it can be efficiently developed, deployed, and operated?
- Does this technology offer additional capabilities that might be leveraged for other products or services?
- Does this technology introduce new risks or constraints to the organization (for example, locking it into a specific vendor)?

The culture of an organization may have a significant impact on the technologies it chooses to use. Some organizations may have more of an interest in being at the cutting edge of technological advances than others. Equally the culture of some organizations may be more traditional. One company may be keen to take advantage of artificial intelligence, while another may barely be ready for advanced data analysis tools.

The nature of the business will also affect the technology it makes use of. For example, a company that does significant business with government clients may

have restrictions on the use of some technologies, or have significantly higher security concerns that must be addressed. Other industries, such as finance or life sciences, are also subject to restrictions around their use of technology. For example, they usually cannot use open source and public services when dealing with sensitive data.

### The ITIL story: Axle's information and technology



*Henri: The information and technology dimension of Axle Car Hire represents the information created and managed by teams. It also includes the technologies that support and enable our services. Applications and databases such as our booking app and financial system are part of the information and technology dimension as well.*



### Definition: Cloud computing

A model for enabling on-demand network access to a shared pool of configurable computing resources that can be rapidly provided with minimal management effort or provider interaction.

### ITSM in the modern world: cloud computing

ITSM has been focusing on value for users and customers for years, and this focus is usually technology-agnostic: what matters is not the technology, but the opportunities it creates for the customers. Although for the most part this is a perfectly acceptable approach, organizations cannot ignore new architectural solutions and the evolution of technology in general. Cloud computing has become an architectural shift in IT, introducing new opportunities and risks, and organizations have had to react to it in ways that are most beneficial for themselves, their customers, and other stakeholders.

Key characteristics of cloud computing include:

- on-demand availability (often self-service)
- network access (often internet access)
- resource pooling (often among multiple organizations)
- rapid elasticity (often automatic)

- measured service (often from service consumer's perspective).

In the context of ITSM, cloud computing changes service architecture and the distribution of responsibilities between service consumers, service providers, and their partners. It especially applies to in-house service providers, i.e. the organization's internal IT departments. In a typical situation, adoption of the cloud computing model:

- replaces some infrastructure, previously managed by the service provider, with a partner's cloud service
- decreases or removes the need for infrastructure management expertise and the resources of the service provider
- shifts the focus of service monitoring and control from the in-house infrastructure to a partner's services
- changes the cost structure of the service provider, removing specific capital expenditures and introducing new operating expenditures and the need to manage them appropriately
- introduces higher requirements for network availability and security
- introduces new security and compliance risks and requirements, applicable to both the service provider and its partner providing the cloud service
- provides users with opportunities to scale service consumption using self-service via simple standard requests, or even without any requests.

All these affect multiple service providers' practices, including, but not limited to:

- service level management
- measurement and reporting
- information security management
- service continuity management
- supplier management
- incident management
- problem management
- service request management
- service configuration management.

Another important effect of cloud computing, resulting from the computing resources' elasticity, is that the cloud infrastructure may enable significantly faster deployment of new and changed services, thus supporting high-velocity service delivery. The ability to configure and deploy computing resources with the same speed as new applications is an important prerequisite for the success of DevOps and similar initiatives. This supports modern organizations

in their need for faster time to market and digitalization of their services.

Considering the influence of cloud computing on organizations, it is important to make decisions about the use of this model at the strategic level of the organization, involving all levels of stakeholders, from governance to operations.

### 3.3 Partners and suppliers

The third dimension of service management is partners and suppliers. Every organization and every service depend to some extent on services provided by other organizations.



#### Key message

The partners and suppliers dimension encompasses an organization's relationships with other organizations that are involved in the design, development, deployment, delivery, support, and/or continual improvement of services. It also incorporates contracts and other agreements between the organization and its partners or suppliers.

Relationships between organizations may involve various levels of integration and formality. This ranges from formal contracts with clear separation of responsibilities, to flexible partnerships where parties share common goals and risks, and collaborate to achieve desired outcomes. Some relationship examples are shown in Table 3.1. Note that the forms of cooperation described are not fixed but exist as a spectrum. An organization acting as a service provider will have a position on this spectrum, which will vary depending on its strategy and objectives for customer relationships. Likewise, when an organization acts as a service consumer, the role it takes on will depend on its strategy and objectives for sourcing and supplier management. When it comes to using partners and suppliers, an organization's strategy should be based on its goals, culture, and business environment. For example, some organizations may believe that they will be best served by focusing their attention on developing certain core competencies, using partners and suppliers to provide other needs. Other organizations may choose to rely as much as possible on their own resources, using partners and suppliers as little as possible. There are, of course, many variations between these two opposite approaches.

Table 3.1 Relationships between organizations

Form of cooperation	Outputs	Responsibility for the outputs	Responsibility for achievement of the outcomes	Level of formality	Examples
Goods supply	Goods supplied	Supplier	Customer	Formal supply contract/invoices	Procurement of computers and phones
Service delivery	Services delivered	Provider	Customer	Formal agreements and flexible cases	Cloud computing (infrastructure or platform as a service)
Service partnership	Value co-created	Shared between provider and customer	Shared between provider and customer	Shared goals, generic agreements, flexible case-based arrangements	Employee onboarding (shared between HR, facilities and IT)

One method an organization may use to address the partners and suppliers dimension is service integration and management. This involves the use of a specially established integrator to ensure that service relationships are properly coordinated. Service integration and management may be kept within the organization, but can also be delegated to a trusted partner.

Factors that may influence an organization's strategy when using suppliers include:

- **Strategic focus** Some organizations may prefer to focus on their **core competency** and to outsource non-core supporting functions to third parties; others may prefer to stay as self-sufficient as possible, retaining full control over all important functions.
- **Corporate culture** Some organizations have a **historical preference** for one approach over another. Long-standing cultural bias is difficult to change without compelling reasons.
- **Resource scarcity** If a required **resource** or **skillset** is in short supply, it may be difficult for the service provider to acquire what is needed without engaging a supplier.
- **Cost concerns** A decision may be influenced by whether the service provider believes that it is more economical to source a particular requirement from a supplier.
- **Subject matter expertise** The service provider may believe that it is less risky to use a supplier that already has expertise in a required area, rather than trying to develop and maintain the subject matter expertise in house.
- **External constraints** Government regulation or **policy**, industry codes of conduct, and social, political or legal constraints may impact an organization's supplier strategy.
- **Demand patterns** Customer activity or demand for services may be **seasonal** or demonstrate high degrees of variability. These patterns may impact the extent to which organizations use external service providers to cope with variable demand.

The last decade has seen an explosion in companies that offer technical resources (infrastructure) or capabilities (platforms, software) 'as a service'. These companies

bundle goods and services into a single product offering that can be consumed as a utility, and is typically accounted for as operating expenditure. This frees companies from investing in costly infrastructure and software assets that need to be accounted for as capital expenditure.

### The ITIL story: Axle's partners and suppliers



*Henri: The partners and suppliers dimension for Axle includes suppliers such as Go Go Gas and Craig's Cleaning, as well as internet service providers and developers.*

## 3.4 Value streams and processes

The fourth dimension of service management is value streams and processes. Like the other dimensions, this dimension is applicable to both the SVS in general, and to specific products and services. In both contexts it defines the activities, workflows, controls, and procedures needed to achieve agreed objectives.



### Key message

Applied to the organization and its SVS, the value streams and processes dimension is concerned with how the various parts of the organization work in an integrated and coordinated way to enable value creation through products and services. The dimension focuses on what activities the organization undertakes and how they are organized, as well as how the organization ensures that it is enabling value creation for all stakeholders efficiently and effectively.

ITIL gives organizations acting as service providers an operating model that covers all the key activities required to manage products and services effectively. This is referred to as the ITIL service value chain (see section 4.5).

The service value chain operating model is generic and in practice it can follow different patterns. These patterns within the value chain operation are called value streams.

### 3.4.1 Value streams for service management



#### Key message

A value stream is a **series of steps** that an organization uses to create and deliver products and services to a service consumer. A value stream is a combination of the organization's **value chain activities** (see section 4.5 for more details on value chain activities and Appendix A for examples of value streams).



#### Definition: Value stream

A **series of steps** an organization undertakes to create and deliver products and services to consumers.

Identifying and understanding the various value streams an organization has is critical to improving its overall performance. Structuring the organization's activities in the form of value streams allows it to have a clear picture of what it delivers and how, and to make continual improvements to its services.

Organizations should examine how they perform work and map all the value streams they can identify. This will enable them to analyse their current state and identify any barriers to workflow and non-value-adding activities, i.e. waste. Wasteful activities should be eliminated to increase productivity.

Opportunities to increase value-adding activities can be found across the service value chain. These may be new activities or modifications to existing ones, which can make the organization more productive. Value stream optimization may include process automation or adoption of emerging technologies and ways of working to gain efficiencies or enhance user experience.

Value streams should be defined by organizations for each of their products and services. Depending on the organization's strategy, value streams can be redefined to react to changing demand and other circumstances, or remain stable for a

significant amount of time. In any case, they should be continually improved to ensure that the organization achieves its objectives in an optimal way. Value stream mapping is described in more detail in other ITIL 4 publications.

### 3.4.2 Processes

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#### Key message

A process is a set of activities that transform inputs to outputs. Processes describe what is done to accomplish an objective, and well-defined processes can improve productivity within and across organizations. They are usually detailed in procedures, which outline who is involved in the process, and work instructions, which explain how they are carried out.



#### Definition: Process

A set of interrelated or interacting activities that transform inputs into outputs. A process takes one or more defined inputs and turns them into defined outputs. Processes define the sequence of actions and their dependencies.

When applied to products and services, this dimension helps to answer the following questions, critical to service design, delivery, and improvement:

- What is the generic delivery model for the service, and how does the service work?
- What are the value streams involved in delivering the agreed outputs of the service?
- Who, or what, performs the required service actions?

Specific answers to these questions will vary depending on the nature and architecture of the service.

## The ITIL story: Axle's value streams and processes



**Radhika:** *The value streams and processes dimension represents the series of activities that are carried out within Axle. Value streams help Axle to identify wasteful activity and remove obstacles that hinder the organization's productivity.*

## 3.5 External factors

Service providers do not operate in isolation. They are affected by many external factors, and work in **dynamic and complex environments** that can exhibit high degrees of volatility and uncertainty and impose constraints on how the service provider can work. To analyse these external factors, frameworks such as the PESTLE (or PESTEL) model are used. PESTLE is an acronym for the political, economic, social, technological, legal, and environmental factors that constrain or influence how a service provider operates.

Collectively, these factors influence how organizations configure their resources and address the four dimensions of service management. For example:

- **Government and societal attitudes** towards environmentally friendly products and services may result in the organization investing more in tools and technologies that meet external expectations. An organization may choose to partner with other organizations (or source services from external providers) who can demonstrate environmentally friendly credentials. For example, some companies publish product environmental reports that describe their products' performance against their policies around climate change, safer materials, and other resources.
- **Economic and societal factors** may influence organizations to create several versions of the same product to address various consumer groups that show different buying patterns. One example is music and video streaming services, many of which have a free tier (with advertising), a premium tier (without advertising), and in some cases a 'family plan' that allows multiple individual profiles under one paid-for account.
- **Data protection laws or regulations** (like GDPR) have changed how companies must collect, process, access, and store customer data, as well as **how they work** with external partners and suppliers.

## 3.6 Summary

The four dimensions represent a holistic approach to service management, and organizations should ensure that there is a balance of focus between each

dimension. The impact of external factors on the four dimensions should also be considered. All four dimensions and the external factors that affect them should be addressed as they evolve, considering emerging trends and opportunities. It is essential that an organization's SVS is considered from all four dimensions, as the failure to adequately address or account for one dimension, or an external factor, can lead to sub-optimal products and services.

### The ITIL story: Balancing the four dimensions



*Marco: To make Axele's services as effective as possible, we use the best combination of our people, our teams, our value streams, and our ways of working. We now engage a blended approach to service management, incorporating DevOps, Design Thinking, and Agile into product development. We also use new technologies such as robotics, AI, and machine learning, striving to be efficient and Lean, and to automate wherever possible.*